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PATENT  
Docket No. SJO920030045US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Brian R. McClain et al.

Serial No.: 10/776,943

Filed: February 11, 2004

For: **APPARATUS AND SYSTEM FOR VERTICALLY  
STORING COMPUTING DEVICES**

Group Art  
Unit: 3634

Examiner: Jared W. Newton

APPEAL BRIEF

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Examiner:

The USPTO received Appellant's timely Notice of Appeal on November 7, 2006, which was filed in response to the Final Office Action mailed August 7, 2006. Appellant appeals the rejection of pending Claims 1, 5, 10, 11, and 21-23.

This Brief is being filed under the provisions of 37 C.F.R. § 41.37. This Brief is timely as the Brief is being filed within two months of the filing of the notice of appeal. The filing fee set forth in 37 C.F.R. § 41.20(b)(2) of \$500.00 is submitted herewith. The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or to credit any overpayment, to Deposit Account No. 09-0466.

## **1. REAL PARTY IN INTEREST**

The real party in interest is the assignee, International Business Machines Corporation.

## **2. RELATED APPEALS AND INTERFERENCES**

There are no related appeals, interferences, or judicial proceedings.

## **3. STATUS OF CLAIMS**

The Office Action of August 7, 2006 cites the following art: U.S. Patent Number 6,286,794 to Harbin (hereinafter Harbin); U.S. Patent Number 6,945,412 to Felcman et al (hereinafter Felcman); U.S. Patent Number 6,783,105 to Oddsen, Jr. (hereinafter Oddsen).

Claims 1, 4-6, 8, 10, 11, and 13-23 are pending in the case. Claims 4, 6, 8, and 13-20 are withdrawn. Claims 1, 13, and 20 are independent claims. Claims 1, 5, 10, 11, and 22 are rejected under 35 USC § 102(b) as being anticipated by Harbin. Claim 21 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Harbin. Claims 1, 5, 22, and 23 are rejected under 35 USC § 103(a) as unpatentable over the combination of Felcman and Oddsen.

The claims remain rejected as set forth in the final rejection of August 7, 2006 as noted in the Advisory Action of October 27, 2006. Appellant appeals the rejection of Claims 1, 5, 10, 11, and 21-23.

## **4. STATUS OF AMENDMENTS**

An amendment to Claim 5 so that Claim 5 depends from a pending claim is entered upon appeal as initiated by the Examiner on October 20, 2006.

## **5. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed subject matter deals with vertically storing computing devices for a computer equipment rack. See published version of the application US patent Publication No. 2005/0173357 A1 (hereinafter '357) ¶ 12.

The problem addressed is vertically storing input/output (I/O) computing devices so that the computing devices do not occupy horizontal storage space within a rack mount frame or

computer equipment rack. See '357 ¶ 11. The present invention improves storing a computing device by storing the computing device outside of a computer equipment rack. See '357 ¶ 35. Specifically, the claimed invention provides a mounting mechanism mounted to a computer equipment rack. See '357 ¶ 38. A vertical storage position is outside of the computer equipment rack. See '357 ¶ 35. The vertical storage position places an upper support and lower support behind a face of the computer equipment rack. See '357 fig. 2A. The computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters. See '357 ¶ 3. The face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack. See '357 ¶ 39, fig. 1, fig. 2A.

Embodiments of the present invention include an upper support, a lower support, and the mounting mechanism.<sup>1</sup> See Claim 1.

Claim 1 presents an apparatus for compactly storing computing devices. The apparatus comprises an upper support comprising a rigid material forming a planar vertical back with substantially perpendicular edge protrusions along planar vertical back edges and configured to receive a display device. See '357 ¶ 36, 37, fig. 2C ref. 202. The apparatus further comprises a lower support comprising a rigid material forming a tray configured to receive a keyboard and an integrated pointing device. See '357, ¶ 37, 41, fig. 2c ref. 204. In addition, the apparatus includes a mounting mechanism that connects the upper support to the lower support and allows the upper support and the lower support to transition between an access position and a vertical storage position, the mounting mechanism mounted to a computer equipment rack such that the vertical storage position is outside of the computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack, wherein the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters and the face is configured as a virtual vertical plane of the computer equipment

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<sup>1</sup> Although Appellant has summarized embodiments of the present invention, the present invention is defined by the claims themselves. Appellant's summary is not intended to limit the scope of the claims or individual claim elements in complying with the appeal brief requirements under 37 C.F.R. § 41.37(c)(v).

rack wherein a user may access equipment mounted within the computer equipment rack. See '357, ¶ 3, 35, 37-39; fig. 2A

The following quotations of Claims 1 and 21 includes reference numerals and parenthetical references to representative examples of the elements and components recited in Claim 1 in compliance with 37 CFR 41.37(c)(1)(v).

1. An apparatus for compactly storing computing devices, comprising:  
an upper support comprising a rigid material ('357 ¶ 36, 37) forming a planar vertical back with substantially perpendicular edge protrusions along planar vertical back edges('357 fig. 2C, ref. 202) and configured to receive a display device ('357 ¶ 36, fig. 2C ref. 202);  
  
a lower support comprising a rigid material ('357 ¶ 37) forming a tray configured to receive a keyboard and an integrated pointing device ('357 ¶ 37, 41); and  
  
a mounting mechanism that connects the upper support to the lower support ('357 ¶ 38) and allows the upper support and the lower support to transition between an access position and a vertical storage position ('357 ¶ 38), the mounting mechanism mounted to a computer equipment rack such that the vertical storage position is outside of the computer equipment rack ('357 ¶ 35) and places the upper support and lower support behind a face of the computer equipment rack ('357 fig. 2A), wherein the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters ('357 ¶ 3) and the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack ('357 ¶ 39, figs. 1, 2A).

21. The apparatus of claim 1, further comprising a motor, gearing, switch, and power supply coupled to the mounting mechanism and configured to motorize the transition between the access position and the vertical storage position ('357, ¶ 42).

The claimed invention provides a system, apparatus, and method that store a computing device so that the computing device does not occupy horizontal storage space with a rack mount frame or computer equipment rack. See '357 ¶ 11. The invention further provides for storing the computing device outside of the computer equipment rack. See '357 ¶ 35.

**6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

**I. Whether the Examiner properly rejected Claims 1, 5, 10, 11, and 22 under 35 U.S.C. §102(b) as being anticipated by Harbin?**

**II. Whether the Examiner properly rejected Claim 21 under 35 U.S.C. §103(a) as being unpatentable over Harbin to Harbin, alone?**

**III. Whether the Examiner properly rejected Claims 1, 5, 22, and 23 under 35 U.S.C. §103(a) as obvious in view of Felcman and Oddsen.**

**IV. Whether Claim 1 is properly rejected under 35 U.S.C. §102(b) as being anticipated by Harbin?**

## 7. ARGUMENT

**I. The rejection of Claims 1, 5, 10, 11, and 22 under 35 U.S.C. §102(b) as obvious is improper because Harbin fails to teach each element of the recited claims.**

Summary of the Examiner arguments.

[002] The Examiner rejects Claims 1, 5, 10, 11, and 22 under 35 U.S.C. § 102(b) as being anticipated by Harbin. The Examiner relies on Harbin for a vertical storage position outside of the computer equipment rack that places the upper support and lower support behind a face of the computer equipment rack. The Examiner further relies on Harbin for the computer equipment rack configured to mount equipment with a height that is an integer multiple of 44.45 millimeters and the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack.

Response.

[003] Appellants respectfully reaffirm the arguments raised against the rejection of Claims 1, 5, 10, 11, and 22 under 35 USC §102(b) set forth in the response mailed October 10, 2006. Appellants submit that Harbin does not teach each element of the recited claims. Specifically, Harbin does not disclose a mounting mechanism that allows an upper support and a lower support to transition between an access position and a vertical storage position. Harbin also does not teach that the vertical storage position is outside of a computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack. In addition, Harbin does not disclose that the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters nor that the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack.

The legal requirements

[004] “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v.*

*Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). For a *prima facie* case of anticipation, each and every element of the claimed invention must be identically disclosed in a single prior art reference; and those elements must be arranged or connected together in a single reference in the same way as specified in the patent claim. *Lindemenn Maschinenfabrik GmbH vs. American Hoist and Derick Co.*, 730 F2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984).

[005] Claim 1 recites: (emphasis added)

1. An apparatus for compactly storing computing devices, comprising:  
an upper support comprising a rigid material forming a planar vertical back with substantially perpendicular edge protrusions along planar vertical back edges and configured to receive a display device;  
a lower support comprising a rigid material forming a tray configured to receive a keyboard and an integrated pointing device; and  
a mounting mechanism that connects the upper support to the lower support and **allows the upper support and the lower support to transition between an access position and a vertical storage position**, the mounting mechanism mounted to a computer equipment rack such that **the vertical storage position is outside of the computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack**, wherein **the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters and the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack.**

[006] Appellants maintain the position that Harbin does not teach or disclose each element of Claim 1. Harbin does not disclose a mounting mechanism that allows an upper



support and a lower support to transition between an access position and a vertical storage position. Instead, Harbin only teaches the access position for a computer workstation. Harbin, fig. 1, ref. 74. While Harbin supports a plurality of vertical and horizontal displacements of the computer workstation, the computer workstation is always in the access position. Harbin does not teach transitioning between an access position and a vertical storage position nor does Harbin disclose a vertical storage position.

[007] Harbin does not teach that the vertical storage position is outside of a computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack. Harbin does not include a computer equipment rack. The Examiner cites the hollow column of Harbin as a computer equipment rack. Office Action of August 7, 2006 (hereinafter OA0807), page 3, lines 10-14. However, the hollow column is configured for electrical and weight-bearing cables. Harbin, col. 4, line 63 – col. 5, line 5. Instead, Harbin is directed to providing access to a computer workstation at a variety of displacements. Harbin, Abstract. Harbin does not mention nor illustrate a computer equipment rack.

[008] Harbin does not disclose that the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters. As discussed above, the hollow column of Harbin is not configured to mount equipment. In addition, Harbin does not teach rack-mounting equipment with a standard height. The Examiner's argument that the mounting device of Harbin could "mount a piece of equipment having any reasonable dimension..." ignores the scope of Harbin. OA0807, page 3, lines 17-18. Harbin is directed positioning a computer workstation independent of any computer equipment rack, while the present invention is directed to storing a computing device outside of a computer equipment rack.

[009] Because Harbin does not teach each element of Claim 1, Appellants submit that Claim 1 is allowable. Appellants further submit that claims 5, 10, 11, and 22 are allowable as depending from allowable claims.

**II. The rejection of Claim 21 under 35 U.S.C. §103(a) as obvious in view of Harbin is improper because Harbin fails to teach each element of the recited claims.**

Summary of the Examiner arguments.

[010] The Examiner rejects Claim 21 under 35 U.S.C. § 103(a) as obvious in view of Harbin. The Examiner relies on Harbin for the motor, gearing, switch, and power supply limitations of Claim 21.

Response.

[011] Harbin teaches "...motorizing the travel of the of the carriage **24** and/or the dual parallelogram arm assembly **28**..." Harbin, col. 8, lines 36-38. However, Harbin does not teach motorizing the transition between an access position and a vertical storage position.

The legal requirements

[012] It is well settled that the PTO has the burden to establish a *prima facie* case of obviousness. *In re Glaug*, 2002 U.S. App. Lexis 4246, \*4 (Fed. Cir. March 15, 2002); MPEP §2142. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP §2143.03 (emphasis added). The Federal Circuit has held that "the 'subject matter' that must have been obvious to deny patentability under §103 is the entirety of the claimed invention," *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1576 (Fed. Cir. 1987). Furthermore, even if all the claim limitations are taught or suggested, there must be some suggestion or motivation to combine reference teachings. *See* MPEP §2142. Applicant respectfully asserts that a *prima facie* case of obviousness has not been made because not all the elements recited in the claims are taught or suggested by the prior art and there is no teaching or suggestion in the art to produce the claimed invention.

[013] The legal and PTO framework for determining claim term meaning is clear. First, “[c]laims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their ‘broadest reasonable interpretation’.” *In re Marosi*, 710 F.2d 799, 802 218 USPQ 289 292 (Fed. Cir. 1983). Second, “[t]he broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). MPEP §2111. And third, “[t]he words of a claim must be given their “plain meaning” unless they are defined in the specification. “[P]lain meaning” refers to the meaning given to the term by those of ordinary skill in the art” MPEP §2111.01. Therefore, the claim term fitness value is to be interpreted in light of the specification and consistent with an interpretation those of skill in the art would give the term. Furthermore, where a term is defined in the specification that definition should control the interpretation.

#### Claim 21

[014] Claim 21 recites (emphasis added):

21. The apparatus of claim 1, further comprising a motor, gearing, switch, and power supply coupled to the mounting mechanism and configured to **motorize the transition between the access position and the vertical storage position.**

[015] Harbin discloses motorizing the carriage and the arm assembly for positioning the computer workstation. Harbin, col. 8, lines 36-38. However, the limitation of Claim 21 is directed to motorizing the transition between the access position and the vertical storage position. As discussed above, Harbin does not disclose a vertical storage position. Harbin teaches an access position in a variety of displacements. Harbin does not disclose a vertical storage position.

Appellants therefore submit that Claim 21 is allowable as Harbin does not include each element of Claim 21.

**III. The rejection of Claims 1, 5, 22, and 23 under 35 U.S.C. §103(a) as obvious in view of Felcman and Oddsen is improper because Felcman and Oddsen fail to teach each element of Claims 1, 5, 22, and 23 and there is no suggestion to combine Felcman and Oddsen.**

Summary of the Examiner arguments.

[016] The Examiner rejects Claims 1, 5, 22, and 23 under 35 U.S.C. § 103(a) as obvious in view of the combination of Felcman and Oddsen. The Examiner relies heavily on Felcman for a computer equipment rack and Oddsen for an adjustable arm in support for the elements of Claims 1, 5, 22, and 23.

Response

[017] Appellants respectfully reaffirm the arguments raised against the rejection of Claims 1, 5, 22, and 23 under 35 USC §103(a) set forth in the response mailed October 10, 2006. Appellants submit that Felcman and Oddsen do not teach all of the elements of the claimed invention and that there is no suggestion or teaching to combine Felcman and Oddsen.

The legal requirements

[018] As discussed above, “To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” MPEP §2143.03 (emphasis added).

[019] “It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor.” *Northern Telecom, Inc. v.*

*Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990) See e.g. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed.Cir.1985).

[020] The Federal Circuit has determined there is no suggestion or motivation to make a proposed modification if the modification would render the prior art unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

[021] Claim 1 recites: (emphasis added)

1. An apparatus for compactly storing computing devices, comprising:  
an upper support comprising a rigid material forming a planar vertical back with substantially perpendicular edge protrusions along planar vertical back edges and configured to receive a display device;

a lower support comprising a rigid material forming a tray configured to receive a keyboard and an integrated pointing device; and

**a mounting mechanism that connects the upper support to the lower support and allows the upper support and the lower support to transition between an access position and a vertical storage position**, the mounting mechanism mounted to a computer equipment rack such that **the vertical storage position is outside of the computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack**, wherein the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters and the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack.

#### All Elements Not Disclosed

[022] Appellants maintain the position that Felcman and Oddsen combined do not teach *a mounting mechanism that allows a transition between an access position and a vertical storage position with the vertical storage position outside of the computer equipment rack and placing the upper support and lower support behind a face of the computer equipment rack*. Appellants raised this argument and support therefore in the response mailed October 10, 2006 on pages 8-9. Felcman teaches a horizontal access position and a horizontal storage position *within* the computer equipment rack. Felcman, Figs. 5 and 6. Oddsen teaches a telescoping arm for positioning an electronic component in an access position at various vertical positions. Oddsen, Abstract; Figs 1-4. Neither Felcman nor Oddsen teach *a mounting mechanism that allows a transition between an access position and a vertical storage position with the vertical storage position outside of the computer equipment rack and placing the upper support and lower support behind a face of the computer equipment rack*.

[023] Neither Felcman nor Oddsen show nor disclose a vertical storage position. See, for example, Felcman, fig. 5, Oddsen, fig. 2. Oddsen is always in a horizontal access position, even when the computing device is elevated out of the way. Oddsen, Fig. 1. Felcman shows a horizontal storage position within a computer equipment rack and a horizontal access position outside of the computer equipment rack, but no vertical storage position. Felcman, Figs. 4 and 5. Without a teaching of a vertical storage position and a mechanism for transitioning between the access position and the vertical storage position, the present invention cannot be obvious over Felcman and Oddsen.

## No Suggestion to Combine

[024] Appellants further submit that there is no suggestion to combine the teachings of Felcman and Oddsen. The Examiner cites that Felcman and Oddsen are analogous art “...because they are from the same field of endeavor-compact component storage.” OA0807, page 5, lines 17-18. Yet, Oddsen teaches away from computing device storage that occupies vacant areas by being mounted on desks or supporting surfaces. Oddsen, col. 1, lines 20-28. Oddsen is instead directed to conserving floor space. Oddsen, col. 1, lines 29-31.

[025] In contrast, Felcman is directed to placing a keyboard and display in a one (1) U thick rack space. Felcman, col. 1, lines 59-63. Thus, Felcman teaches away from mounting a computing device outside of the computer equipment rack. There is therefore no suggestion to combine Felcman and Oddsen as each is directed to mutual exclusive storage strategies. Mounting the computing device to a computer equipment rack as taught in Felcman destroys the utility of Oddsen in conserving floor space while the telescoping arm of Oddsen destroys the utility of a one (1) U form factor of Felcman.

[026] In addition, the vertical telescoping arm of Oddsen is clearly unsuitable for mounting to a computer equipment rack. Oddsen teaches that “The display arm 100 is mountable at an elevated location to a supporting wall generally above the height of a user.” Oddsen, col. 5, lines 9-11. Mounting the vertical telescoping arm of Oddsen to a computer equipment rack at roughly the height of the user destroys the utility of Oddsen. In addition, the computing device would be unusable if vertical telescoping arm of Oddsen were placed behind the face of the computer equipment rack.

[027] Felman and Oddsen do not teach all of the elements of the present invention. In addition, there is no suggestion Felman and Oddsen. Appellants therefore submit that claims 1, 5, 22, and 23 are allowable.

**V. The rejection of Claim 1 under 35 U.S.C. §102(b) as anticipated by Harbin is improper where the Examiner has not responded to the Appellants arguments.**

Summary of the Examiner arguments.

[028] The Examiner rejects Claim 1 under 35 U.S.C. § 102(b) as being anticipated by Harbin. The Advisory Action of October 27 states that, “The arguments of the 102(b) rejection of claim 1 are directed to an amendment of claim 1 that was previously filed on May 8, 2006. Claim 1 was not amended in the response to the final rejection of August 7, 2006, and thus the claim as presented in said response (dated October 10, 2006) has already been considered and the rejection thereof is upheld.” Advisory Action, October 27, 2006, page 3.

Response.

[029] Appellants assert that the Examiner did not consider the arguments directed to Claim 1 in the response of October 10, 2006 to the final rejection of August 7, 2006. While both the responses of May 8, 2006 and October 10, 2006 were directed to the same distinguishing elements of the present invention, the May 8, 2006 response argued that the distinguishing elements of the present invention were not anticipated by United States Patent Number 6,621,692 to Johnson et al. (hereinafter Johnson). The October 10, 2006 response argued that the same distinguishing elements of the present invention were not anticipated by Harbin. Therefore the arguments in the October 10, 2006 response could not have already been considered.

[030] Appellants submit that since the rejection under 35 USC §102(b) is overcome as explained above and the Examiner has not responded to Appellants arguments in support of Claim 1, that Claim 1 is allowable. Appellants request that the rejection of Claim 1 be overruled.



### SUMMARY

In view of the foregoing, Appellants respectfully assert that each of the claims on appeal has been improperly rejected because the rejections under 35 U.S.C. §102(b) and §103(a) are improper. Therefore, Appellants respectfully request reversal of the Examiner's rejections under 35 U.S.C. §102(b) and §103(a), and urges that pending claims 1, 5, 10, 11, 22, and 23 are ready for prompt allowance. Appellants appeal to the Board's objective and reasoned decision on this matter.

Respectfully submitted,

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## 8. CLAIMS APPENDIX

The Claims involved in the appeal, namely Claims 1, 5, 10, 11, and 22, are listed below.

1. An apparatus for compactly storing computing devices, comprising:

an upper support comprising a rigid material forming a planar vertical back with substantially perpendicular edge protrusions along planar vertical back edges and configured to receive a display device;

a lower support comprising a rigid material forming a tray configured to receive a keyboard and an integrated pointing device; and

a mounting mechanism that connects the upper support to the lower support and allows the upper support and the lower support to transition between an access position and a vertical storage position, the mounting mechanism mounted to a computer equipment rack such that the vertical storage position is outside of the computer equipment rack and places the upper support and lower support behind a face of the computer equipment rack, wherein the computer equipment rack is configured to mount equipment with a height that is an integer multiple of 44.45 millimeters and the face is configured as a virtual vertical plane of the computer equipment rack wherein a user may access equipment mounted within the computer equipment rack.

4. The apparatus of claim 2, wherein the mounting mechanism pivotally connects the upper support to the lower support.

5. The apparatus of claim 1, wherein the mounting mechanism is configured to slide the upper support and lower support between the access position and the vertical storage position.

6. The apparatus of claim 2, wherein the mounting mechanism is configured to pivot the upper and lower support between the access position and the vertical storage position.

8. The apparatus of claim 2, further comprising a vertical adjustment mechanism configured to allow the upper support and lower support to be vertically adjusted to a plurality of vertical positions.

10. The apparatus of claim 1, wherein the access position comprises the lower support at least partially in a non-vertical orientation.

11. The apparatus of claim 1, wherein the access position comprises the upper support at least partially in a non-vertical orientation.

13. A system for vertical storage of an I/O terminal presentable for use in a horizontal position, comprising:

a rack mount frame configured to house horizontally mounted computer equipment;

an I/O terminal comprising a flat display pivotally connected to a keyboard such that the keyboard pivots between a substantially vertical position and a non-vertical position;

a mounting mechanism configured to mount the I/O terminal to the rack mount frame such that the I/O terminal is movable between a substantially vertical storage position and an access position in which at least the keyboard of the I/O terminal is in a non-vertical position.

14. The system of claim 13, further comprising a cabinet that encloses the rack mount frame and the I/O terminal when the I/O terminal is in the vertical storage position.

15. The system of claim 13, further comprising a vertical adjustment mechanism configured to connect the I/O terminal to the rack mount frame such that a user can adjust the height of the I/O terminal.

16. The system of claim 13, wherein the mounting mechanism comprises:  
a mounting bracket connectable to the rack mount frame;

a hinge connecting the mounting bracket to the I/O terminal such that closing the hinge positions the I/O terminal in the vertical storage position and opening the hinge positions the I/O terminal in the access position.

17. The system of claim 13, wherein the mounting mechanism comprises a telescoping member connected to the I/O terminal and configured to position the I/O terminal in the access position when extended and in the vertical storage position when retracted.

18. The system of claim 13, wherein the mounting mechanism comprises:

a mounting bracket connected to the rack mount frame;

a rail connected to the I/O terminal and slidably connected to the mounting bracket such that extending the rail with respect to the mounting bracket positions the I/O terminal in front of the rack mount frame and retracting the rail positions the I/O terminal in the vertical storage position.

19. The system of claim 13, wherein the rack mount frame comprises a face, the mounting mechanism configured such that in the vertical storage position, the I/O terminal is parallel to the face.

20. An apparatus for storing a first I/O device and a second I/O device vertically, the apparatus comprising:

a mounting bracket connected to a rack mount frame, the rack mount frame having a face;

a first I/O tray configured to receive a first I/O device;

a second I/O tray pivotally connected to the first I/O tray and configured to receive a second I/O device;

a mounting mechanism connected to the first I/O tray and the second I/O tray, the mounting mechanism configured to allow the first I/O tray and the second I/O tray to move between a

stored vertical position behind the face and an access position in front of the face, the mounting mechanism further configured such that the first I/O tray and the second I/O tray are vertically adjustable.

21. The apparatus of claim 1, further comprising a motor, gearing, switch, and power supply coupled to the mounting mechanism and configured to motorize the transition between the access position and the vertical storage position.

22. The apparatus of claim 1, wherein the mounting mechanism is mounted to a frame member of the computer equipment rack.

23. The apparatus of claim 1, wherein the mounting mechanism is mounted to a divider panel of the computer equipment rack.

## **9. EVIDENCE APPENDIX**

There is no material to be included in the Evidence Appendix.

## **10. RELATED PROCEEDINGS APPENDIX**

There is no material to be included in the Related Proceedings Appendix.